

one closed chamber having liquid therein which extends to cover at least one of the areas from which heat is to be taken, and a space above the liquid and within each of said at least one closed chamber, wherein pressure is set at a level which will enable the liquid to boil at a selected temperature, and condensing means to effect, by cooling, condensation of the vapor or vapors of the liquid in the space, the liquid having a volume such that it has an upper level above one of the areas of the mould to be cooled and substantially only the vapor of the liquid within the chamber above the upper level of the liquid so that the total overall temperature of the mould is kept relatively uniform and provides for effective heat transmission through the mould.

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19. A mould as in claim 18, wherein the chamber is shaped and positioned so that the liquid therein will have effective access to each of the areas of the mould from which heat is to be taken and the liquid flows back to the body of the liquid in the closed chamber.

20. A mould as claimed in either of claims 18 or 19, wherein the liquid is water only.

21. A mould as claimed in either of claims 18 or 19, wherein the mould is a mould for moulding of plastics materials.

22. A mould claimed in either of claims 18 or 19, wherein the mould is a die for the mould casting of metals.

23. A mould as claimed in either of claims 18 or 19, wherein the mould is a mould for injection moulding of plastic material.

24. A mould as claimed in either of claims 18 or 19, wherein the mould is a mould for moulding by thermoforming of plastic materials.

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25. A mould having an internal cooling arrangement which is a closed chamber having therein a liquid with a volume such that it has an upper level above at least some of the areas of the mould to be cooled and has substantially only the vapor or vapors of the liquid in a space within the chamber above the upper level of the liquid and condensing means to effect, by cooling, condensation of the vapor or vapors of the liquid, said closed chamber being integrated with the mould, and total overall temperature of the mould is maintained relatively uniform and the cooling condenses the vapor or vapors.

26. A mould for injection moulding of plastic materials having an internal cooling arrangement which is a closed chamber partially filled with a liquid having an upper level sufficient that at least some areas of the mould within the chamber adjacent to parts of the mould to be cooled are accessed by the liquid when the mould is in use and provided in a space in the chamber above the liquid, there is substantially only the vapor of the liquid and condensing means within this space.

27. A mould for injection moulding of plastic materials which provides for effective heat transmission throughout the mould, the mould having an internal cooling arrangement which is a closed chamber partially filled with a liquid with an upper level of sufficient height so that at least some areas of the mould within the chamber adjacent parts of the mould to be cooled are accessed by the liquid when the mould is in use and, in a space in the chamber above the liquid, substantially only the vapor of the liquid, and an arrangement to provide cooling of any vapor within the space in the chamber above the liquid level to effect at least some condensation of the vapor thereby so that the overall temperature of the mould is kept relatively uniform and heat is dissipated by the cooling of the vapor.

28. A mould as in preceding claim 25 where the liquid is water.

29. A mould as in preceding claim 25 wherein the vapor is water vapor.

30. A mould as in any one of the preceding claims 26 or 27, wherein the mould is a die, and including at least a heating means located within the chamber within the liquid such that during a standby time, the temperature of the die or mould can be kept within a selected range of temperatures.

31. A mould as in any one of the preceding claims 26 or 27 wherein the cooling means include a tube, a core in the tube and means to direct cooling water through the tube.

32. A method of cooling of working parts of a mould where the mould has at least one closed chamber having liquid therein which extends to cover at least one of the areas from which heat is to be taken, and a space above the liquid and within the closed chamber in which pressure within the space is caused to be set at a level which

will enable the liquid to boil at a selected temperature, said selected temperature being at a level such that the temperature is below a temperature of the area from which heat is to be taken this being by reason of, as a first step, partially filling each of said at least one closed chambers with the liquid and then extracting air above the liquid so that there is substantially only the vapor or vapors of the liquid within the chamber above the upper level of the liquid, and passing at a selected cooling temperature, liquid through condensing means to effect, by such cooling, condensation of vapor of the liquid in the space.

33. A method of cooling of working parts of a mould where the mould has at least one closed chamber having liquid therein which extends to cover at least one of the areas from which heat is to be taken, each of said at least one closed chamber being integrated with the mould and a space above the liquid and within the closed chamber in which pressure within the space is caused to be set at a level which will enable the liquid to boil at a selected temperature, said selected temperature being at a level such that the temperature is below a temperature of the area from which heat is to be taken this being by reason of, as a first step, filling of the closed chamber with the liquid and then extracted a selected proportion of the liquid without allowing air to replace the extracting liquid, and passing at a selected cooling temperature, liquid through condensing means to effect, by such cooling, condensation of vapor of the liquid in the space.

34. A method as in any one of the preceding claims 32 and 33 wherein the liquid is water.